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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/900,975 | 07/10/2001 | Tin Cheung Wong | 12027-0004 | 7937 |

7590

07/15/2004

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| EXAMINER |
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DESIRE, GREGORY M

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| ART UNIT | PAPER NUMBER |
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2625

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/900,975

Applicant(s)

WONG, TIN CHEUNG

Examiner

Gregory M. Desire

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: The specification does not contain section headings, such as BACKGROUND OF THE INVENTION, BRIEF SUMMARY OF THE INVENTION, DETAILED DESCRIPTION OF THE INVENTION and etc.

Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.

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- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.

- (e) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject

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matter of the claimed invention. This item may also be titled "Technical Field."

- (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (f) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (g) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (h) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.
- (i) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation.

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There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

- (j) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (k) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

Claim Objections

- 2. The following is a quotation of 37 CFR § 1.75 (a) are the basis of objection:

(a) The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

- 3. Claims 2-4 are objected to under 37 CFR § 1.75(a) as failing to particularly point out and distinctly claim the subject matter which the applicant regards his invention or discovery. It is indefinite as to whether "a predefined algorithm in claims 2 line 3, claim 3 line 6 and claim 4 line 6 is the same 'predefined algorithm in claim 1 lines 5-6.

Claim Rejections - 35 USC § 112

- 4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 2 recites the limitation "the distortion due to noise" in lines 4-5. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al (5,339,366).

Regarding computer process claim 1 Tanaka discloses,

Wherein the central processing unit (which reads on CPU fig. 1 block 1) of a computer (which reads on image processing device col. 4 lines 29-31), programmed with appropriate instruction analyses of lines in the bitmap images (note col. 4 lines 32-35 and col. 5 lines 60-68, input programs performed by CPU stored in program memory provides instructions to analyze lines in the map image (bitmap image)), intersections and shapes associated with the lines in the bitmap image (note col. 5 line 62-col. 6 line 6, lines cite program that analyze intersection lines and line image with height attributes, examiner interprets as shapes) and process the same sequentially in accordance with predefined algorithms to create a complete vectorized image of the lines together with all intersections and shapes associated with those lines (note col. 6 lines 6-10 and 12-

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20, converting map image to vector graphic data is creating a complete vectorized image of the contour lines which includes shape of the configuration and traced data specifies the intersections).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Chhabra (5,923,782).

Regarding computer process claim 2 Tanaka discloses,

Wherein the central processing unit sequentially analyses in accordance with a predefined algorithm each black pixel in the bitmap image to determine a segment of a line, which has no intersection (note col. 4 lines 29-31 and 35-37, lines describe program for tracing, where it is determined when there is a line segment with no intersection). However, Tanaka does not disclose expressly wherein the distortion due to noise is within predefined limits. Chhabra discloses a filtering process that minimizes (predefined limits) distortion due to noise of bitmap image (note col. 6 lines 13-16). The bitmap image is filtered to correct portions (note col. 5 lines 61-64). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to minimize distortions in the system of Tanaka. Improved accuracy through line

correction would have been a highly desirable feature in the linear stroke analysis art due to its image correction function and Chhabra recognizes that improved accuracy would be expected when minimizing distortion of Chhabra is included in Tanaka's process (note col. 1 lines 59-60 and col. 2 line 67- col. 3 line 2).

10. Claims 3 and 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka and Chhabra in further view of Dao et al (5,815,163).

Regarding computer process claim 3 Tanaka and Chhabra discloses,

Wherein the central processing unit analyses the segment of line from the first black pixel which has no intersections (as stated in the above claim 2, in Tanaka) and wherein the distortion due to noise is within predefined limits in each direction of lines (as stated in the above claim 2, in Chhabra) and converting attributes of a line to a vector to create a vectorized image of the line corresponding with the bitmap image (as stated in the above claim 1, in Tanaka). However, Tanaka and Chhabra do not disclose expressly wherein the attributes of position, length and direction of the line is determined in accordance with a predefined algorithm. The specification describes determining of position, length and direction is based on Bresenham line algorithm. Dao discloses determining, position, length and direction of the line in accordance with a predefined algorithm (note col. 5 lines 2-65 and fig. 6). Bresenham algorithm determines lines at high speeds (note Dao col. 2 lines 57-59 and col. 5 lines 59-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to determine position, length and direction in the system of

Tanaka and Chhabra. Increasing speed would have been a highly desirable feature in linear analysis art due its processing function and Dao recognized that increasing speed would be expected when determining position, length, and direction in accordance with a predefined algorithm of Dao is included in the system of Tanaka and Chhabra.

Regarding computer process claim 4 Tanaka and Chhabra discloses,

Wherein the central processing unit analyses all intersecting lines detected along the line in accordance with a predefined algorithm (as stated above in claim 1, Tanaka) and wherein the line attributes of intersecting lines is then converted to a vector to create a vectorized image of the intersecting lines corresponding with the bitmap image (as stated above in claim 1, Tanaka). However, Tanaka and Chhabra do not discloses expressly wherein the attributes of position, length and direction of the intersecting lines are determined in accordance with a predefined algorithm. The specification describes determining of position, length and direction of intersecting lines are based on Bresenham line algorithm. Dao discloses determining, position, length and direction of lines in accordance with a predefined algorithm (note col. 5 lines 2-65 and fig. 6). Bresenham algorithm determines lines at high speeds (note Dao col. 2 lines 57-59 and col. 5 lines 59-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to determine position, length and direction in the system of Tanaka and Chhabra. Increasing speed would have been a highly desirable feature in linear analysis art due to its processing function and Dao recognized that increasing speed would be expected when determining position, length,

and direction in accordance with a predefined algorithm of Dao is included in the system of Tanaka and Chhabra.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka, Chhabra and Dao in further view of Kikuchi (5,841,903).

Regarding computer process claim 5 Tanaka, Chhabra and Dao discloses

Wherein all lines and intersections associated with that line is detected by the central processing unit from the bitmap images (as stated above claim 1, Tanaka), and bitmap images are vectorized by the central processing unit (as stated above claim 1, Tanaka). However, Tanaka, Chhabra and Dao do not disclose expressly deleting lines and intersections detected from the bitmap image. However, Kikuchi deletes lines and intersection from the bitmap image (note col. 3 lines 58-63, which read all connected components of an image being cancelled from first memory (examiner interprets as bitmap)). This would provide higher speed accessing (note col. 8 lines 58-62).

Therefore, it would have been obvious to one having ordinary skill in the art the time the invention was made to delete lines and intersection from bitmap image in the system of Tanaka, Chhabra and Dao. Higher speed accessing would have been a highly desirable feature in linear analysis art due to processing function. Kikuchi recognized that high speed accessing would be expected when deleting line and intersection from bitmap image line segment by line segment as disclosed in Kikuchi is included in the system of Tanaka, Chhabra and Dao.

Also, Tanaka, Chhabra do not disclose expressly processing is repeated. However, Kikuchi repeats processing (note Kikuchi, col. 9 lines 22-25). Processes are repeated until no further line segments are detected. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to repeat the processing in the system Tanaka, Chhabra and Dao. Processing all the detected lines segment would have been a desirable feature in linear segment analysis art due to accuracy function. Kikuchi recognized that complete processing of all line segment would be expected when repeating processing of Kikuchi is included in the system of Tanaka, Chhabra and Dao.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory M. Desire whose telephone number is (703) 308-9586. The examiner can normally be reached on M-F (8:30-6:00) Second Monday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gregory M. Desire
Examiner
Art Unit 2625



G.D.
June 29, 2004